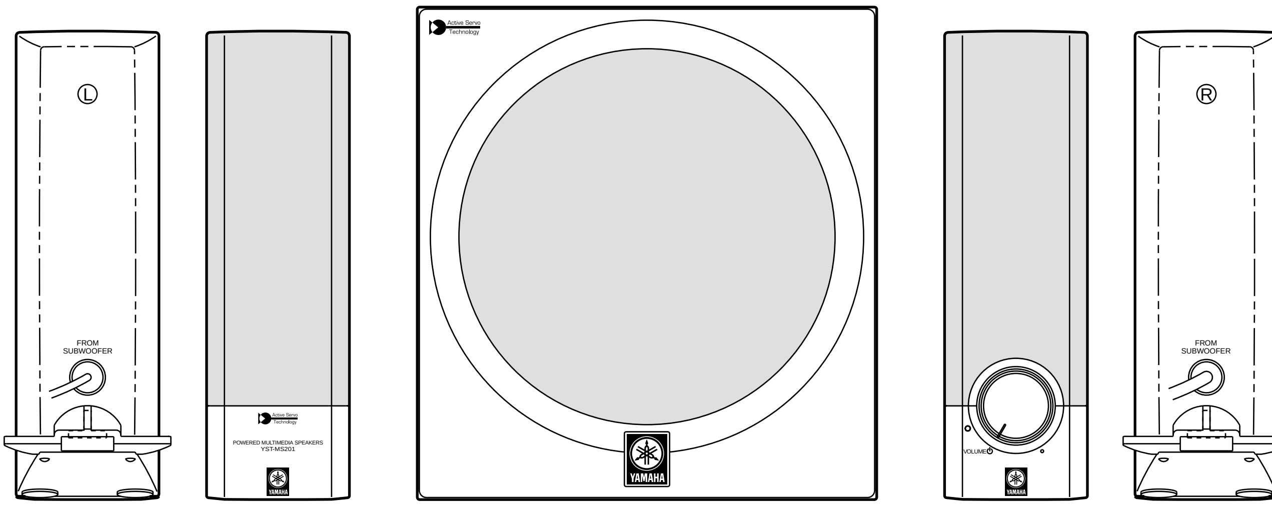
POWERED MULTIMEDIA SPEAKERS

YST-MS201

SERVICE MANUAL



IMPORTANT NOTICE

This manual has been provided for the use of authorized YAMAHA Retailers and their service personnel.
It has been assumed that basic service procedures inherent to the industry, and more specifically YAMAHA Products, are already known and understood by the users, and have therefore not been restated.

WARNING: Failure to follow appropriate service and safety procedures when servicing this product may result in personal injury, destruction of expensive components, and failure of the product to perform as specified. For these reasons, we advise all YAMAHA product owners that any service required should be performed by an authorized YAMAHA Retailer or the appointed service representative.

IMPORTANT: The presentation or sale of this manual to any individual or firm does not constitute authorization, certification or recognition of any applicable technical capabilities, or establish a principle-agent relationship of any form.

The data provided is believed to be accurate and applicable to the unit(s) indicated on the cover. The research, engineering, and service departments of YAMAHA are continually striving to improve YAMAHA products. Modifications are, therefore, inevitable and specifications are subject to change without notice or obligation to retrofit. Should any discrepancy appear to exist, please contact the distributor's Service Division.

WARNING: Static discharges can destroy expensive components. Discharge any static electricity your body may have accumulated by grounding yourself to the ground buss in the unit (heavy gauge black wires connect to this buss).

IMPORTANT: Turn the unit OFF during disassembly and part replacement. Recheck all work before you apply power to the unit.

■ CONTENTS

このサービスマニュアルは、エコマーク認定の再生紙を使用しています。
This Service Manual uses recycled paper.

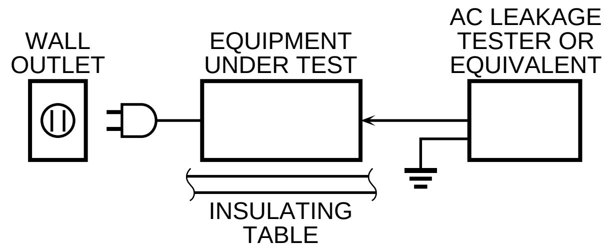
100725

YAMAHA
YAMAHA CORPORATION
P.O.Box 1, Hamamatsu, Japan

■ TO SERVICE PERSONNEL

1. Critical Components Information
   Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.
2. Leakage Current Measurement (For 120V Models Only)
   When service has been completed, it is imperative to verify that all exposed conductive surfaces are properly insulated from supply circuits.

- Meter impedance should be equivalent to 1500 ohm shunted by 0.15µF.
- Leakage current must not exceed 0.5mA.
- Be sure to test for leakage with the AC plug in both polarities.



WARNING: CHEMICAL CONTENT NOTICE!

The solder used in the production of this product contains LEAD. In addition, other electrical/electronic and/or plastic (where applicable) components may also contain traces of chemicals found by the California Health and Welfare Agency (and possibly other entities) to cause cancer and/or birth defects or other reproductive harm.

DO NOT PLACE SOLDER, ELECTRICAL/ELECTRONIC OR PLASTIC COMPONENTS IN YOUR MOUTH FOR ANY REASON WHATSOEVER!

Avoid prolonged, unprotected contact between solder and your skin! When soldering, do not inhale solder fumes or expose eyes to solder/flux vapor!

If you come in contact with solder or components located inside the enclosure of this product, wash your hands before handling food.

■ SPECIFICATIONS

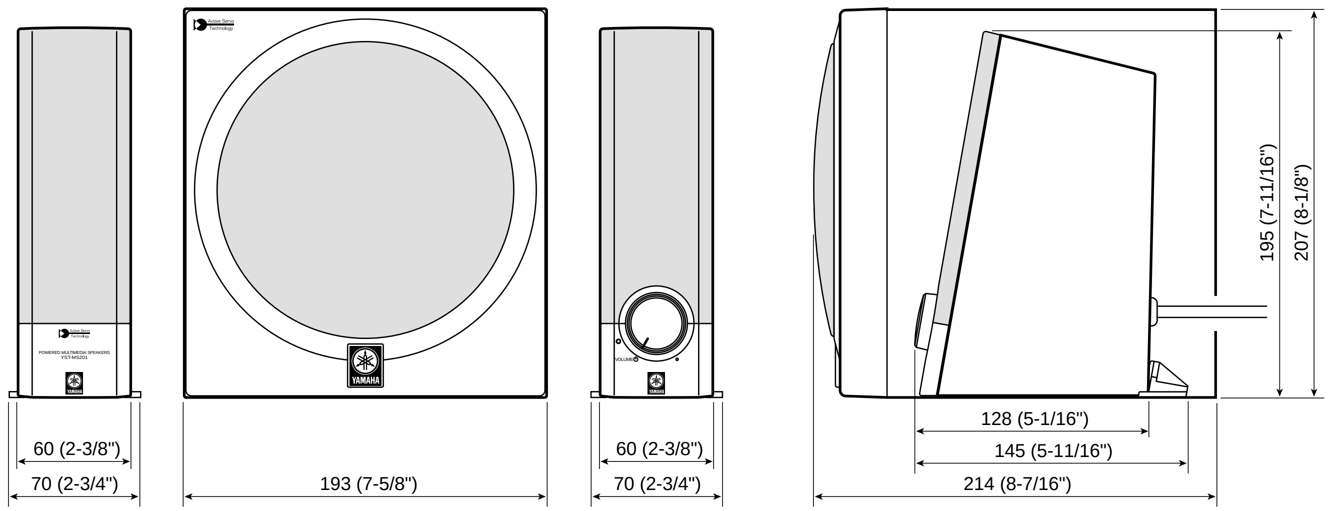
Type	Active Servo Technology
Driver	
Satellite	8.5 cm (3-3/8") x 4.5 cm (1-3/4") cone Magnetically shielded type
Subwoofer	12 cm (4-3/4") cone Magnetically shielded type (JA1287)
Amplifier Output	
Satellite	6 W + 6 W (1 kHz, 4Ω at T.H.D.=10%)
Subwoofer	18 W (100 Hz, 4Ω at T.H.D.=10%)
Input Sensitivity	200 mV (1 kHz, 4 Ω at 6 W)
Input Impedance	20 kΩ
Frequency Response	45 Hz to 20 kHz (Satellite + Subwoofer)

Power Supply	
U.S.A. and Canada models	AC 120V, 60 Hz
U.K. and Europe models	AC 230V, 50 Hz
Australia model	AC 240V, 50 Hz
Dimensions (W x H x D)	
Satellite	70 x 195 x 145 mm (2-3/4" x 7-11/16" x 5-11/16")
Subwoofer	193 x 207 x 214 mm (7-5/8" x 8-1/8" x 8-7/16")
Weight	
Satellite	0.6 kg (1.3 lb.) / R ch unit 0.5 kg (1.1 lb.) / L ch unit
Subwoofer	2.8 kg (6.2 lb.)
Finish	White, Black
Accessory	AC Adaptor (DC 15V, 1.2A) x 1

* Specifications subject to change without notice.

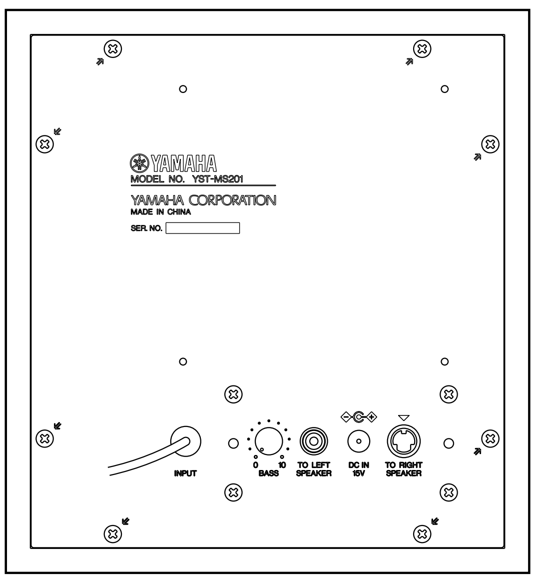
J .... Japan model
C .... Canada model
A .... Australia model
G .... Europe model
U .... U.S.A. model
R .... General model
B ..... British model

■ Dimensions ／寸法図

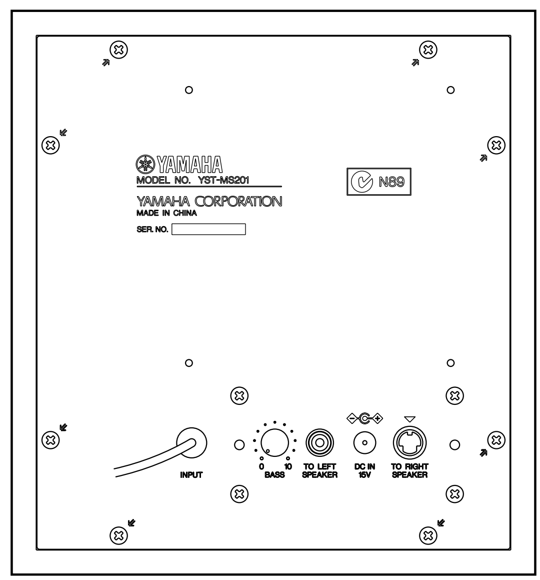


■ REAR PANELS (Subwoofer) ／リアパネル図（サブウーファー）

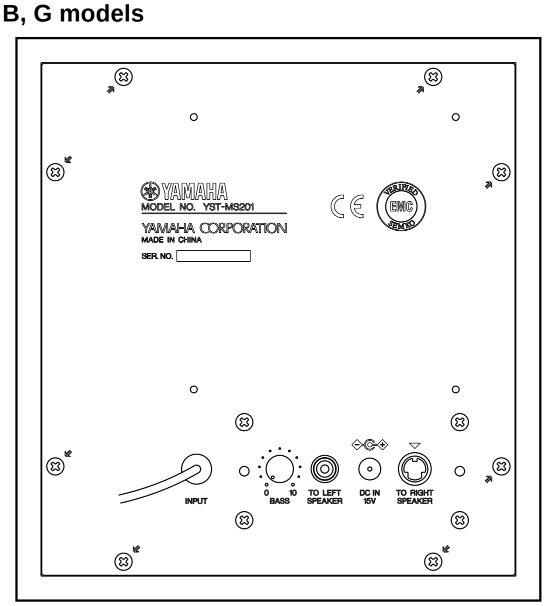
U, C models



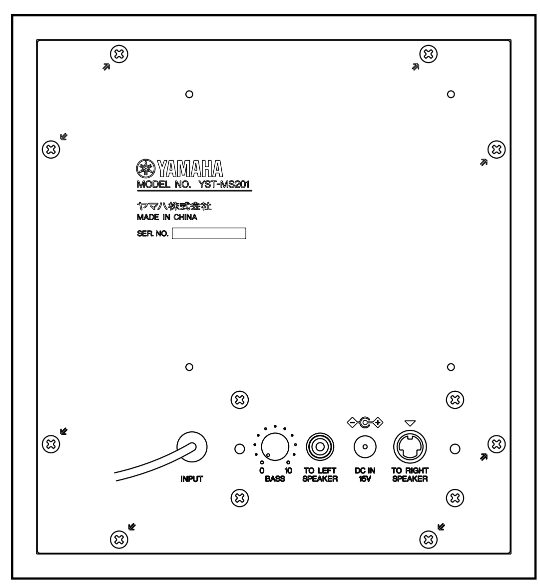
A model



B, G models



J model



■ DISASSEMBLY PROCEDURES (Subwoofer)

(Remove parts in disassembly order as numbered.)

1. Removal of Rear Panel Ass'y
Remove 8 screws (①) and then remove the Rear Panel Ass'y.

2. Removal of Front Grille Ass'y
a. Insert the tip of flat tip (-) screwdriver to slot located at bottom side of the Front Grille Ass'y.
b. Pry the Front Grille Ass'y by applying force to the screwdriver.
note) Take special care not to cause damage to the cabinet when using the screwdriver.

3. Removal of Speaker
Remove 4 screws (②) and then remove the Speaker.

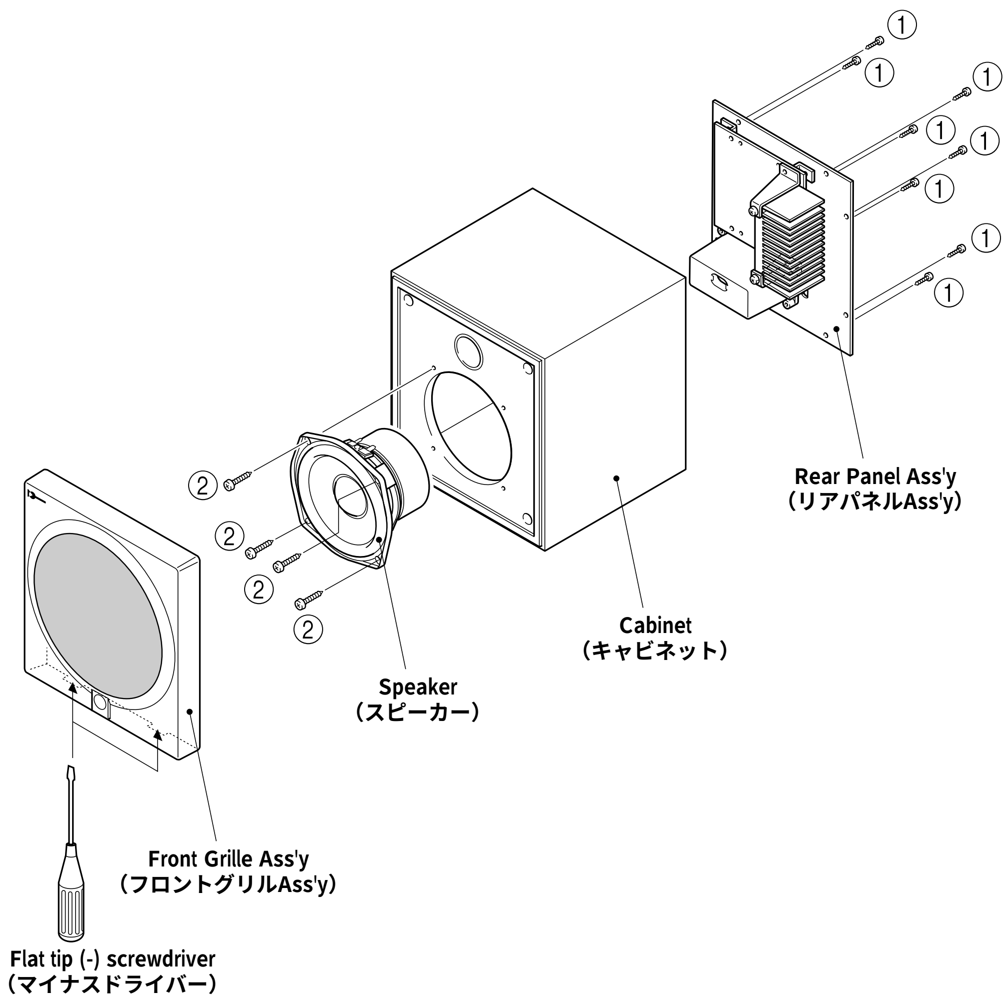
■ 分解手順（サブウーファー）

（番号順に取り外しを行ってください。）

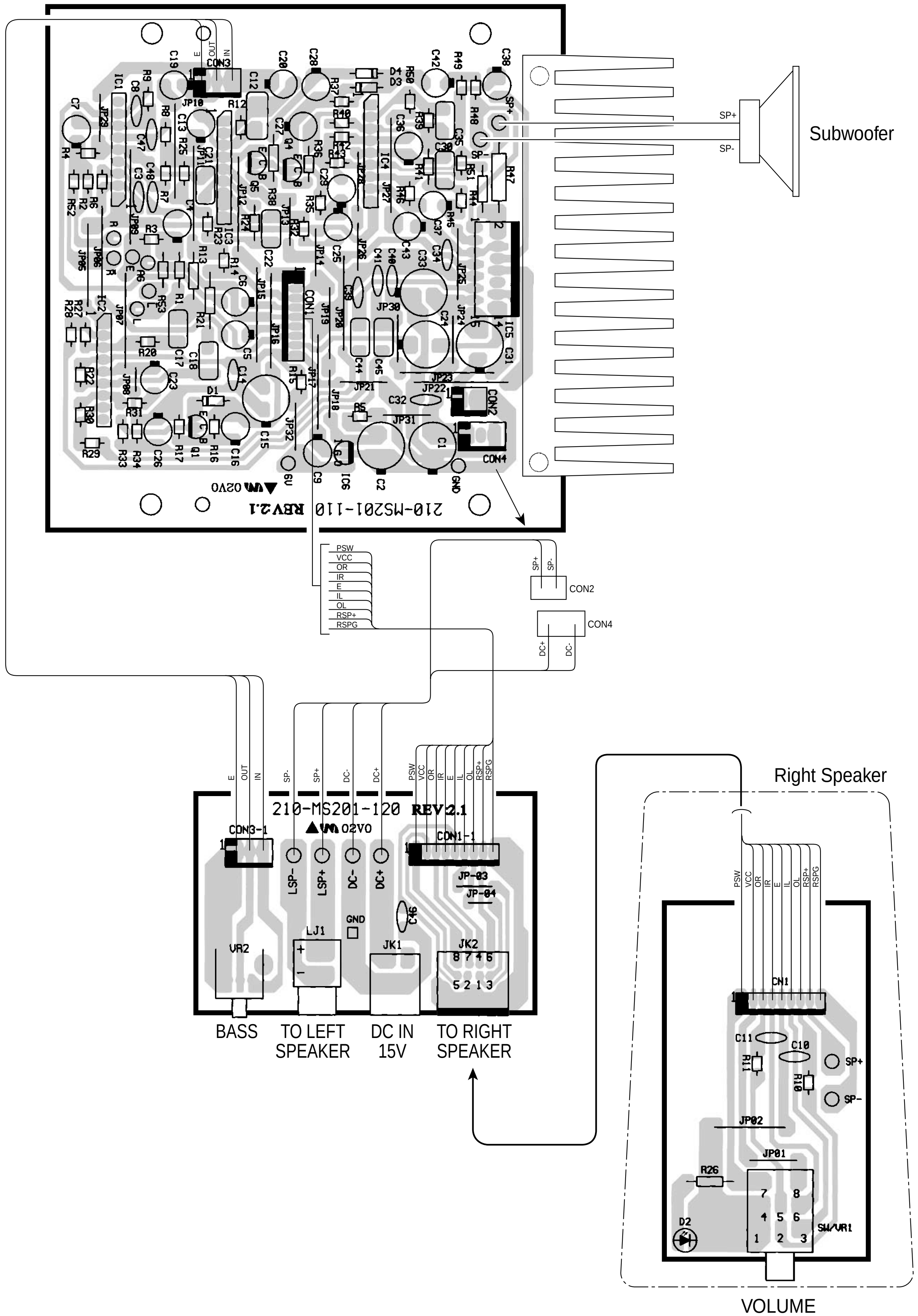
1. リアパネルAss'yの外し方
①のネジ8本を外し、リアパネルAss'yを外します。

2. フロントグリルAss'yの外し方
a. フロントグリルAss'yの底側にあるすきまにマイナスドライバーの先端を差し込みます。
b. ドライバーでこじってフロントグリルAss'yを外します。
注） ドライバー使用時はキャビネットに傷を付けないように十分注意してください。

3. スピーカーの外し方
②のネジ4本を外し、スピーカーを外します。

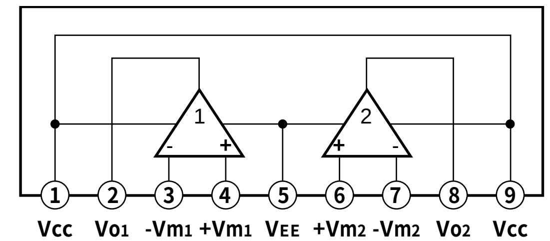


■ PRINTED CIRCUIT BOARD (Parts side) ／シート図（部品側）

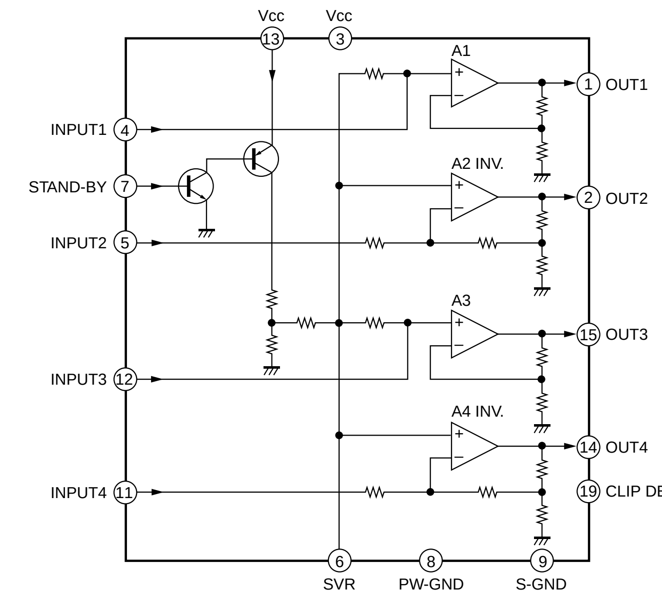


■ IC BLOCK DIAGRAM ／ICブロック図

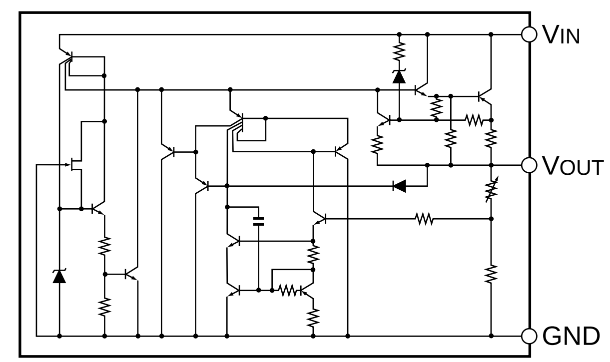
μPC4570HA
Dual OP-Amp.



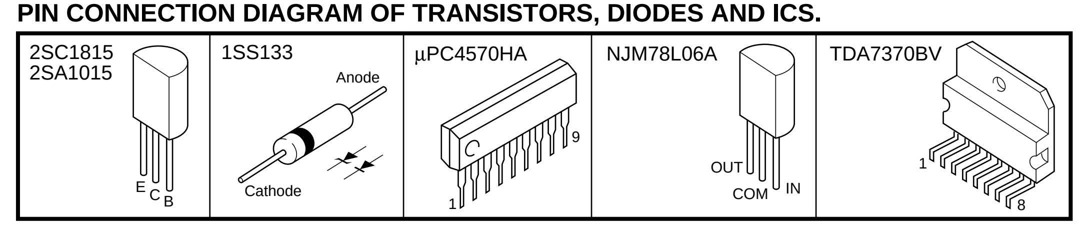
TDA7370BV
Quad Power Amp.



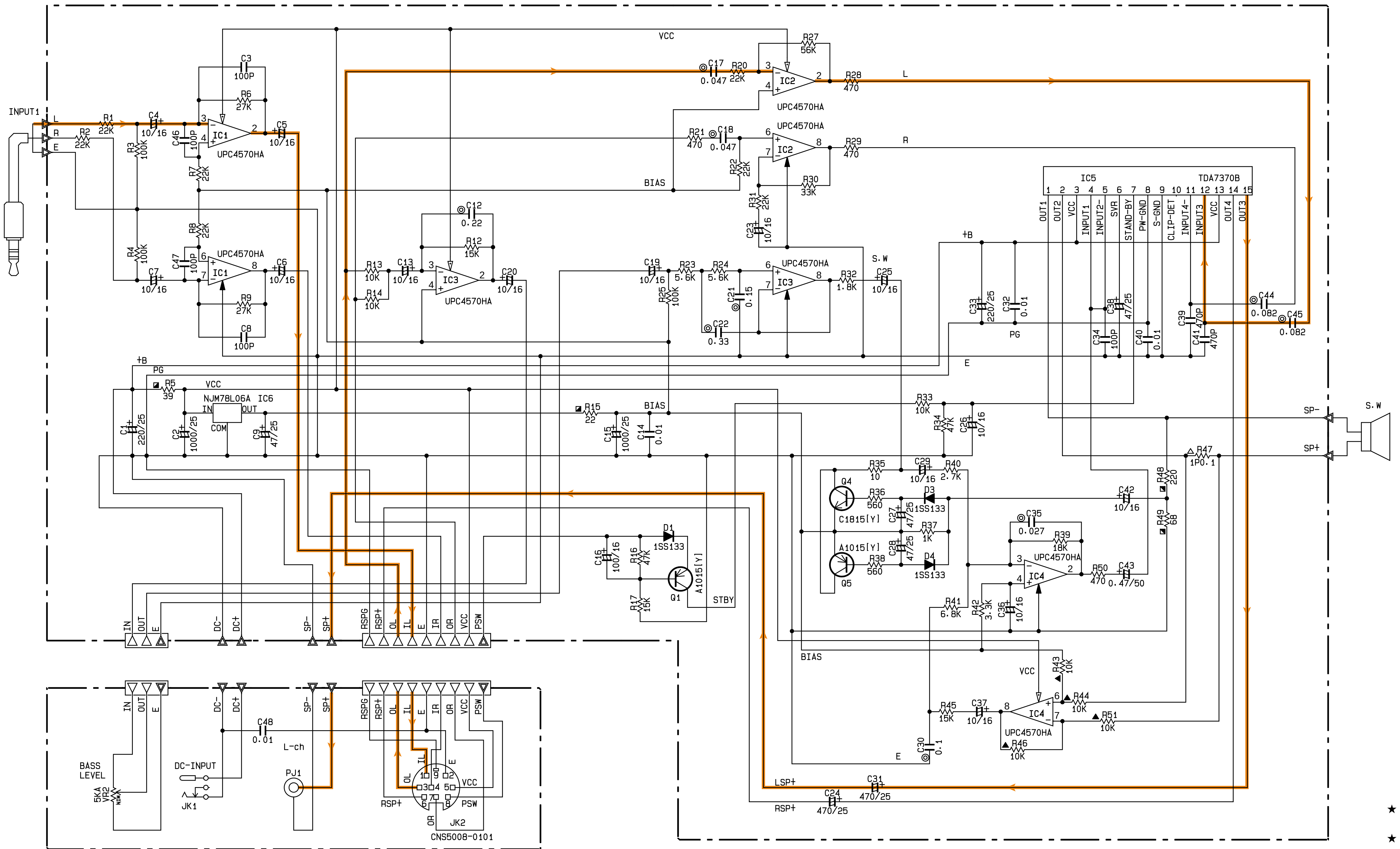
NJM78L06A
Regulator

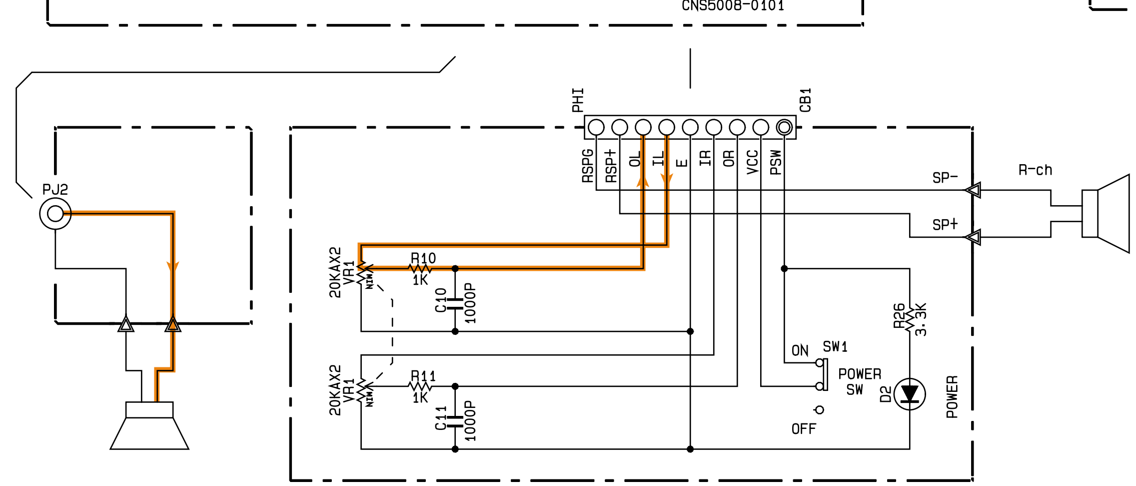


PIN CONNECTION DIAGRAM OF TRANSISTORS, DIODES AND ICS.



■ SCHEMATIC DIAGRAM ／総回路図





CAPACITOR

REMARKS	PARTS NAME	
NO MARK	ELECTROLYTIC CAPACITOR	(polarized)
⊗	TANTALUM CAPACITOR	
NO MARK	CERAMIC CAPACITOR	(non-polarized)
◉	CERAMIC TUBULAR CAPACITOR	
◎	POLYESTER FILM CAPACITOR	
○	POLYSTYRENE FILM CAPACITOR	
Ⓘ	MICA CAPACITOR	
Ⓟ	POLYPROPYLENE FILM CAPACITOR	
◉	SEMICONDUCTIVE CERAMIC CAPACITOR	
Ⓢ	POLYPHENYLENE SULFIDE FILM CAPACITOR	

RESISTOR

REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (P=5)
◪	CARBON FILM RESISTOR (P=10)
△	METAL OXIDE FILM RESISTOR
▲	METAL FILM RESISTOR
⊠	METAL PLATE RESISTOR
◩	FIRE PROOF CARBON FILM RESISTOR
□	CEMENT MOLDED RESISTOR
⊘	SEMI VARIABLE RESISTOR
■	CHIP RESISTOR

★ All voltage are measured with a 10MΩ/V DC electric volt meter.
★ Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.
★ Schematic diagram is subject to change without notice.

● 電圧は、内部抵抗10MΩの電圧計で測定したものです。
● ⚠印のある部品は、安全性確保部品を示しています。部品の交換が必要な場合は、パーツリストに記載されている部品を使用してください。
● 本回路図は標準回路図です。改良のため予告なく変更することがございます。

PARTS LIST

■ ELECTRICAL PARTS

■ **WARNING**

Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.

- Carbon resistors (1/6W or 1/4W) are not included in the ELECTRICAL PARTS List. For the parts No. of the carbon resistors, refer to last page.

ABBREVIATIONS IN THIS LIST ARE AS FOLLOWS:

C.A.EL.CHP	: CHIP ALUMI.ELECTROLYTIC CAP
C.CE	: CERAMIC CAP
C.CE.ARRAY	: CERAMIC CAP ARRAY
C.CE.CHP	: CHIP CERAMIC CAP
C.CE.ML	: MULTILAYER CERAMIC CAP
C.CE.M.CHP	: CHIP MULTILAYER CERAMIC CAP
C.CE.SAFTY	: RECOGNIZED CERAMIC CAP
C.CE.TUBLR	: CERAMIC TUBULAR CAP
C.CE.SMI	: SEMI CONDUCTIVE CERAMIC CAP
C.EL	: ELECTROLYTIC CAP
C.MICA	: MICA CAP
C.ML.FLM	: MULTILAYER FILM CAP
C.MP	: METALLIZED PAPER CAP
C.MYLAR	: MYLAR FILM CAP
C.MYLAR.ML	: MULTILAYER MYLAR FILM CAP
C.PAPER	: PAPER CAPACITOR
C.PLS	: POLYSTYRENE FILM CAP
C.POL	: POLYESTER FILM CAP
C.POLY	: POLYETHYLENE FILM CAP
C.PP	: POLYPROPYLENE FILM CAP
C.TNTL	: TANTALUM CAP
C.TNTL.CHP	: CHIP TANTALUM CAP
C.TRIM	: TRIMMER CAP
CN	: CONNECTOR
CN.BS.PIN	: CONNECTOR,BASE PIN
CN.CANNON	: CONNECTOR,CANNON
CN.DIN	: CONNECTOR,DIN
CN.FLAT	: CONNECTOR,FLAT CABLE
CN.POST	: CONNECTOR,BASE POST
COIL.MX.AM	: COIL,AM MIX
COIL.AT.FM	: COIL,FM ANTENNA
COIL.DT.FM	: COIL,FM DETECT
COIL.MX.FM	: COIL,FM MIX
COIL,OUTPT	: OUTPUT COIL
DIOD.ARRAY	: DIODE ARRAY
DIODE.BRG	: DIODE BRIDGE
DIODE.CHP	: CHIP DIODE
DIODE.VAR	: VARACTOR DIODE
DIOD.Z.CHP	: CHIP ZENER DIODE
DIODE.ZENR	: ZENER DIODE
DSCR.CE	: CERAMIC DISCRIMINATOR
FER.BEAD	: FERRITE BEADS
FER.CORE	: FERRITE CORE
FET.CHP	: CHIP FET
FL.DSPLY	: FLUORESCENT DISPLAY
FLTR.CE	: CERAMIC FILTER
FLTR.COMB	: COMB FILTER MODULE
FLTR.LC.RF	: LC FILTER,EMI
GND.MTL	: GROUND PLATE
GND.TERM	: GROUND TERMINAL
HOLDER.FUS	: FUSE HOLDER
IC.PRTCT	: IC PROTECTOR
JUMPER.CN	: JUMPER CONNECTOR
JUMPER.TST	: JUMPER,TEST POINT
L.DTCT	: LIGHT DETECTING MODULE
L.EMIT	: LIGHT EMITTING MODULE
LED.DSPLY	: LED DISPLAY
LED.INFRD	: LED,INFRARED
MODUL.RF	: MODULATOR,RF
PHOT.CPL	: PHOTO COUPLER
PHOT.INTR	: PHOTO INTERRUPTER
PHOT.RFLCT	: PHOTO REFLECTOR
PIN.TEST	: PIN,TEST POINT
PLST.RIVET	: PLASTIC RIVET
R.ARRAY	: RESISTOR ARRAY
R.CAR.	: CARBON RESISTOR
R.CAR.CHP	: CHIPRESISTOR
R.CAR.FP	: FLAME PROOF CARBON RESISTOR
R.FUS	: FUSABLE RESISTOR
R.MTL.CHP	: CHIP METAL FILM RESISTOR
R.MTL.FLM	: METAL FILM RESISTOR
R.MTL.OXD	: METAL OXIDE FILM RESISTOR
R.MTL.PLAT	: METAL PLATE RESISTOR
RSNR.CE	: CERAMIC RESONATOR
RSNR.CRYS	: CRYSTAL RESONATOR
R.TW.CEM	: TWIN CEMENT FIXED RESISTOR
R.WW	: WIRE WOUND RESISTOR
SCR.BND.HD	: BIND HEAD B-TITE SCREW
SCR.BW.HD	: BW HEAD TAPPING SCREW
SCR.CUP	: CUP TITE SCREW
SCR.TERM	: SCREW TERMINAL
SCR.TR	: SCREW,TRANSISTOR
SUPRT.PCB	: SUPPORT,P.C.B.
SURG.PRTCT	: SURGE PROTECTOR
SW.TACT	: TACT SWITCH
SW.LEAF	: LEAF SWITCH
SW.LEVER	: LEVER SWITCH
SW.MICRO	: MICRO SWITCH
SW.PUSH	: PUSH SWITCH
SW.RT.ENC	: ROTARY ENCODER
SW.RT.MTR	: ROTARY SWITCH WITH MOTOR
SW.RT	: ROTARY SWITCH
SW.SLIDE	: SLIDE SWITCH
TERM.SP	: SPEAKERTERMINAL
TERM.WRAP	: WRAPPING TERMINAL
THRMST.CHP	: CHIP THERMISTOR
TR.CHP	: CHIP TRANSISTOR
TR.DGT	: DIGITAL TRANSISTOR
TR.DGT.CHP	: CHIP DIGITAL TRANSISTOR
TRANS	: TRANSFORMER
TRANS.PULS	: PULSE TRANSFORMER
TRANS.PWR	: POWERTRANSFORMER ASS'Y
TUNER.AM	: TUNER PACK,AM
TUNER.FM	: TUNER PACK,FM
TUNER.PK	: FRONT-ENDTUNER PACK
VR	: ROTARY POTENTIOMETER
VR.MTR	: POTENTIOMETER WITH MOTOR
VR.SW	: POTENTIOMETER WITH ROTARY SW
VR.SLIDE	: SLIDEPOTENTIOMETER
VR.TRIM	: TRIMMER POTENTIOMETER

Note) Those parts marked with "#" are not included in the P.C.B. ass'y.

■ ELECTRICAL PARTS

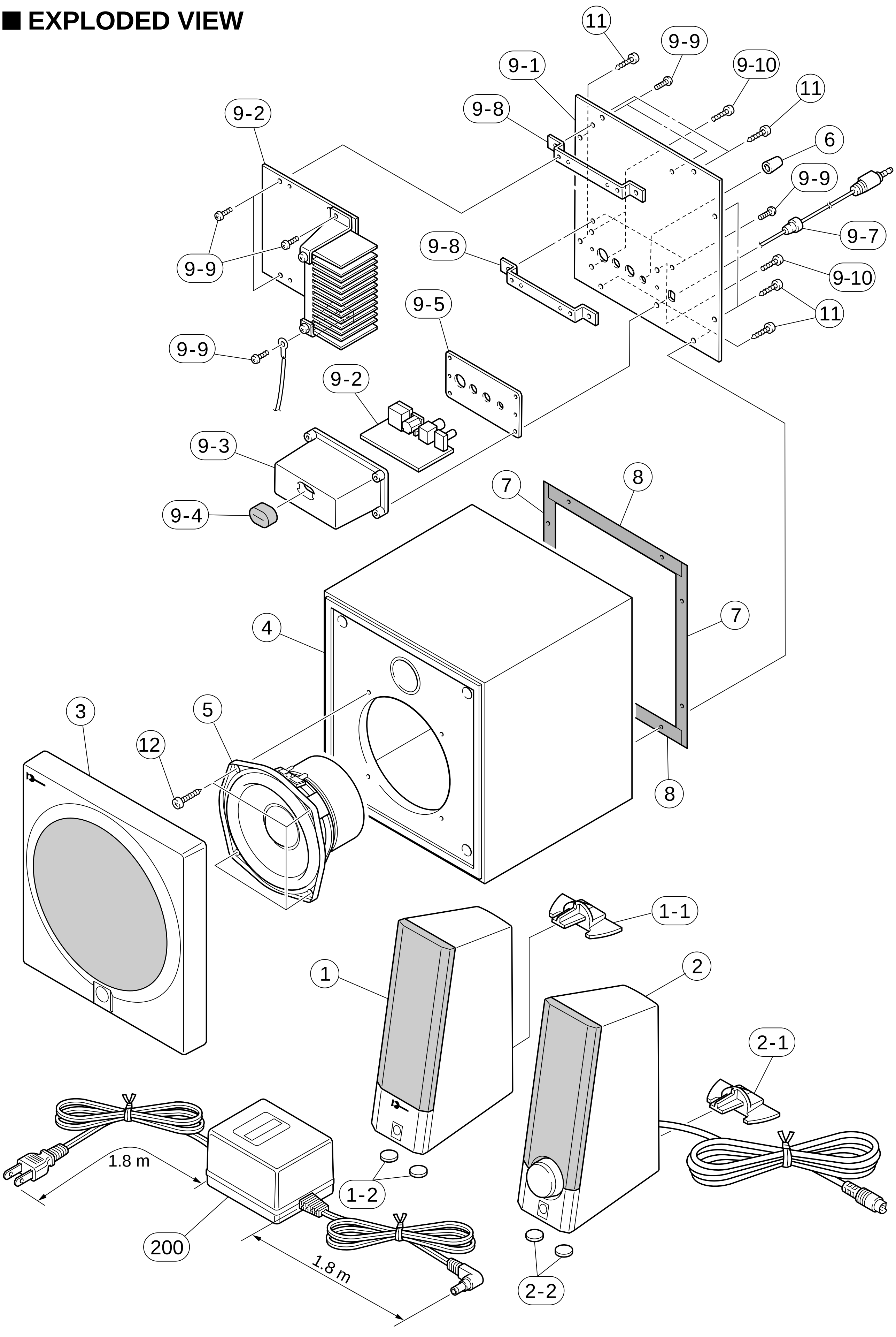
	Schm No.	PART NO.	Description		Remarks	Markets
*		AAX18750	P.C.B ASS'Y	AMP	209MS201SW	
	C01	UR848220	ELECTROLYTIC CAP	220uF 25V		
	C02	UR849100	ELECTROLYTIC CAP	1000uF 25V		
	C03	FG212100	CERAMIC CAP	100pF 50V		
	C04	UR837100	ELECTROLYTIC CAP	10uF 16V		
	C05	UR837100	ELECTROLYTIC CAP	10uF 16V		
	C06	UR837100	ELECTROLYTIC CAP	10uF 16V		
	C07	UR837100	ELECTROLYTIC CAP	10uF 16V		
	C08	FG212100	CERAMIC CAP	100pF 50V		
	C09	UR847470	ELECTROLYTIC CAP	47uF 25V		
	C12	UA655220	MYLAR FILM CAP	0.22uF 50V		
	C13	UR837100	ELECTROLYTIC CAP	10uF 16V		
	C14	FG644100	CERAMIC CAP	0.01uF 50V		
	C15	UR849100	ELECTROLYTIC CAP	1000uF 25V		
	C16	UR838100	ELECTROLYTIC CAP	100uF 16V		
	C17	UA654470	MYLAR FILM CAP	0.047uF 50V		
	C18	UA654470	MYLAR FILM CAP	0.047uF 50V		
	C19	UR837100	ELECTROLYTIC CAP	10uF 16V		
	C20	UR837100	ELECTROLYTIC CAP	10uF 16V		
	C21	UA655150	MYLAR FILM CAP	0.15uF 50V		
	C22	UA655330	MYLAR FILM CAP	0.33uF 50V		
	C23	UR837100	ELECTROLYTIC CAP	10uF 16V		
	C24	UR848470	ELECTROLYTIC CAP	470uF 25V		
	C25	UR837100	ELECTROLYTIC CAP	10uF 16V		
	C26	UR837100	ELECTROLYTIC CAP	10uF 16V		
	C27	UR847470	ELECTROLYTIC CAP	47uF 25V		
	C28	UR847470	ELECTROLYTIC CAP	47uF 25V		
	C29	UR837100	ELECTROLYTIC CAP	10uF 16V		
	C30	UA655100	MYLAR FILM CAP	0.1uF 50V		
	C31	UR848470	ELECTROLYTIC CAP	470uF 25V		
	C32	FG644100	CERAMIC CAP	0.01uF 50V		
	C33	UR848220	ELECTROLYTIC CAP	220uF 25V		
	C34	FG212100	CERAMIC CAP	100pF 50V		
	C35	UA654270	MYLAR FILM CAP	0.027uF 50V		
	C36	UR837100	ELECTROLYTIC CAP	10uF 16V		
	C37	UR837100	ELECTROLYTIC CAP	10uF 16V		
	C38	UR847470	ELECTROLYTIC CAP	47uF 25V		
	C39	FG212100	CERAMIC CAP	100pF 50V		
	C40	FG644100	CERAMIC CAP	0.01uF 50V		
	C41	FG212100	CERAMIC CAP	100pF 50V		
	C42	UR837100	ELECTROLYTIC CAP	10uF 16V		
	C43	UR865470	ELECTROLYTIC CAP	0.47uF 50V		
	C44	UA654820	MYLAR FILM CAP	0.082uF 50V		
	C45	UA654820	MYLAR FILM CAP	0.082uF 50V		
	C46	FG212100	CERAMIC CAP	100pF 50V		
	C47	FG212100	CERAMIC CAP	100pF 50V		
	C48	FG644100	CERAMIC CAP	0.01uF 50V		
	D1	iF004600	DIODE	ISS133-T		
	D3	iF004600	DIODE	ISS133-T		
	D4	iF004600	DIODE	ISS133-T		
	IC1	XB247A00	IC	UPC4570HA		
	IC2	XB247A00	IC	UPC4570HA		
	IC3	XB247A00	IC	UPC4570HA		

∗ New Parts

	Schm No.	PART NO.	Description		Remarks	Markets
	IC4	XB247A00	IC	UPC4570HA		
	IC5	AAX09210	IC	TDA7370BV	054128	
*	IC6	AAX18760	IC	NJM78L06A	16078L06A	
*	JK1	AAX18770	DC JACK	LGP7031-0300	203LGP7031A	
*	JK2	AAX18780	DIN JACK	8P 2MJ-0106A121	203MS201	
*	PJ1	AAX18790	PIN JACK	1P HTJ-032-05BW	203HTJ03205BW	
	Q1	iA101530	TRANSISTOR	2SA1015 Y,GR		
	Q4	iC181530	TRANSISTOR	2SC1815 GR		
	Q5	iA101530	TRANSISTOR	2SA1015 Y,GR		
	R5	HV754390	FLAME PROOF CARBON RESISTOR	39Ω 1/4W		
	R15	HV754220	FLAME PROOF CARBON RESISTOR	22Ω 1/4W		
	R43	VP441400	METAL FILM RESISTEOR	10KΩ 1/4W		
	R44	VP441400	METAL FILM RESISTEOR	10KΩ 1/4W		
	R46	VP441400	METAL FILM RESISTEOR	10KΩ 1/4W		
	R47	Vi435900	METAL OXIDE FILM RESISTOR	0.1Ω 1W		
	R48	HV755220	FLAME PROOF CARBON RESISTOR	220Ω 1/4W		
	R49	HV754680	FLAME PROOF CARBON RESISTOR	68Ω 1/4W		
	R51	VP441400	METAL FILM RESISTEOR	10KΩ 1/4W		
*	VR2	AAX18800	ROTARY POTENTIOMETER	VR 5KA RK09K111	1025KA09001	

* New Parts

■ EXPLODED VIEW



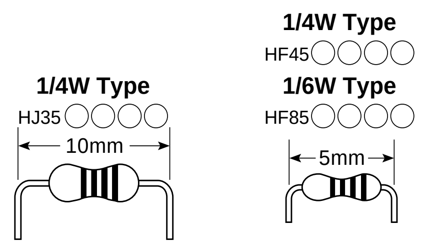
■ MECHANICAL PARTS

	Ref. No.	PART NO.	Description		Remarks	Markets
*	1	AAX18520	SATELLITE SPEAKER UNIT	Lch WH	YSTMS201SRWL	
*	1	AAX18530	SATELLITE SPEAKER UNIT	Lch BL	YSTMS201SRBL	
*	1-1	AAX19970	BRACKET	WH	40B1MS201SR	
*	1-1	AAX19980	BRACKET	BL	40B1MS201SRB	
*	1-2	AAX19990	PAD	WH D14.8x2t 2pcs	430SAMURAI	
*	1-2	AAX20000	PAD	BL D14.8x2t 2pcs	430SAMURAIB	
*	2	AAX18540	SATELLITE SPEAKER UNIT	Rch WH	YSTMS201SRWR	
*	2	AAX18550	SATELLITE SPEAKER UNIT	Rch BL	YSTMS201SRBR	
*	2-1	AAX19970	BRACKET	WH	40B1MS201SR	
*	2-1	AAX19980	BRACKET	BL	40B1MS201SRB	
*	2-2	AAX19990	PAD	WH D14.8x2t 2pcs	430SAMURAI	
*	2-2	AAX20000	PAD	BL D14.8x2t 2pcs	430SAMURAIB	
*	3	AAX18560	FRONT GRILLE ASS'Y	WH	40BMS201SWW	
*	3	AAX18570	FRONT GRILLE ASS'Y	BL	40BMS201SWB	
*	4	AAX18580	CABINET ASS'Y	WH	505MS201SW	
*	4	AAX18590	CABINET ASS'Y	BL	505MS201SWB	
*	5	XZ263A00	SPEAKER UNIT	12cm JA1287	XZ263A00	
*	6	AAX18600	KNOB	VOLUME BLACK	40B1K9933B	
*	7	AAX18610	PACKING	185x13x1t W/ADH	429MS201SWA	
*	8	AAX18620	PACKING	155x13x1t W/ADH	429MS201SWB	
*	9-1	AAX18630	REAR PANEL		350MS201SWUC	(UC)
*	9-1	AAX18640	REAR PANEL		350MS201SWA	(A)
*	9-1	AAX18650	REAR PANEL		350MS201SWBG	(BG)
*	9-2	AAX18750	P.C.B ASS'Y	AMP	209MS201SW	
*	9-3	AAX18670	BACK COVER		40B1CMS201SW	
*	9-4	AAX18680	RUBBER BUSH	22x10t	4301MSW10	
*	9-5	AAX18690	PACKING	43x86x1t	429MS201SWC	
*	9-7	AAX18700	CORD BUSH		406SR2M1	
*	9-8	AAX18710	BRACKET		350MS201SWB	
	9-9	EP600820	BIND HEAD B-TITE SCREW	3x6 FCRM3-BL		
*	9-10	AAX18720	BIND HEAD P-TITE SCREW	3.5x14 BL	306B8351400	
*	11	AAX18730	BIND HEAD WOOD SCREW	M3.5x14 BL	300B8351400	
*	12	AAX18740	BIND HEAD WOOD SCREW	M4x14 BL	300B8401400	
			ACCESSORIES			
	200	V4609500	AC ADAPTOR	DC15V 1.2A AC120V (DC 1.8m, AC 1.8m)	054327	(UC)
	200	V4609800	AC ADAPTOR	DC15V 1.2A AC230V (DC 1.8m, AC 1.8m)	054329	(B)
	200	V4609900	AC ADAPTOR	DC15V 1.2A AC230V (DC 1.8m, AC 1.8m)	054330	(G)
	200	V4609700	AC ADAPTOR	DC15V 1.2A AC240V (DC 1.8m, AC 1.8m)	054328	(A)

* New Parts

Parts List for Carbon Resistors

Value	**1/4W** Type Part No.	**1/6W** Type Part No.	Value	**1/4W** Type Part No.	**1/6W** Type Part No.
1.0 Ω	HJ35 3100	HF85 3100	10 kΩ	HF45 7100	HF45 7100
1.8 Ω	HJ35 3180	❊	11 kΩ	HF45 7110	HF45 7110
2.2 Ω	HJ35 3220	HF85 3220	12 kΩ	HJ35 7120	HF85 7120
3.3 Ω	HJ35 3330	HF85 3330	13 kΩ	HF45 7130	HF45 7130
4.7 Ω	HJ35 3470	HF85 3470	15 kΩ	HF45 7150	HF45 7150
5.6 Ω	HJ35 3560	HF85 3560	18 kΩ	HF45 7180	HF45 7180
10 Ω	HF45 4100	HF45 4100	22 kΩ	HF45 7220	HF45 7220
15 Ω	HJ35 4150	HF85 4150	24 kΩ	HF45 7240	HF45 7240
22 Ω	HF45 4220	HF45 4220	27 kΩ	HJ35 7270	HF85 7270
27 Ω	HJ35 4270	HF85 4270	30 kΩ	HF45 7300	HF45 7300
33 Ω	HF45 4330	HF45 4330	33 kΩ	HF45 7330	HF45 7330
39 Ω	HJ35 4470	HF85 4390	36 kΩ	HF45 7360	HF45 7360
47 Ω	HF45 4470	HF45 4470	39 kΩ	HF45 7390	HF45 7390
56 Ω	HF45 4560	HF45 4560	47 kΩ	HF45 7470	HF45 7470
68 Ω	HF45 4680	HF45 4680	51 kΩ	HF45 7510	HF45 7510
75 Ω	HF45 4750	HF45 4750	56 kΩ	HF45 7560	HF45 7560
82 Ω	HF45 4820	HF45 4820	62 kΩ	HF45 7620	HF45 7620
91 Ω	HF45 4910	HF45 4910	68 kΩ	HF45 7680	HF45 7680
100 Ω	HF45 5100	HF45 5100	82 kΩ	HF45 7820	HF45 7820
110 Ω	HJ35 5110	HF85 5110	91 kΩ	HF45 7910	HF45 7910
120 Ω	HF45 5120	HF45 5120	100 kΩ	HF45 8100	HF45 8100
150 Ω	HF45 5150	HF45 5150	110 kΩ	HF45 8110	HF45 8110
160 Ω	HJ35 5160	❊	120 kΩ	HF45 8120	HF45 8120
180 Ω	HF45 5180	HF45 5180	150 kΩ	HF45 8150	HF45 8150
200 Ω	HF45 5200	HF45 5200	180 kΩ	HF45 8180	HF45 8180
220 Ω	HF45 5220	HF45 5220	220 kΩ	HJ35 8220	HF85 8220
270 Ω	HF45 5270	HF45 5270	270 kΩ	HF45 8270	HF45 8270
330 Ω	HF45 5330	HF45 5330	300 kΩ	HF45 8300	HF45 8300
390 Ω	HF45 5390	HF45 5390	330 kΩ	HF45 8330	HF45 8330
430 Ω	HF45 5430	HF45 5430	390 kΩ	HJ35 8390	HF85 8390
470 Ω	HF45 5470	HF45 5470	470 kΩ	HF45 8470	HF45 8470
510 Ω	HF45 5510	HF45 5510	560 kΩ	HJ35 8560	HF85 8560
560 Ω	HF45 5560	HF45 5560	680 kΩ	HJ35 8680	HF85 8680
680 Ω	HF45 5680	HF45 5680	820 kΩ	HJ35 8820	HF85 8820
820 Ω	HF45 5820	HF45 5820	1.0 MΩ	HF45 9100	HF45 9100
910 Ω	HF45 5910	HF45 5910	1.2 MΩ	HJ35 9120	❊
1.0 kΩ	HF45 6100	HF45 6100	1.5 MΩ	HJ35 9150	HF85 9150
1.2 kΩ	HF45 6120	HF45 6120	1.8 MΩ	HJ35 9180	HF85 9180
1.5 kΩ	HF45 6150	HF45 6150	2.2 MΩ	HJ35 9220	HF85 9220
1.8 kΩ	HF45 6180	HF45 6180	3.3 MΩ	HJ35 9330	HF85 9330
2.0 kΩ	HJ35 6200	HF85 6200	3.9 MΩ	HJ35 9390	❊
2.2 kΩ	HF45 6220	HF45 6220	4.7 MΩ	HJ35 9470	HF85 9470
2.4 kΩ	HJ35 6240	HF85 6240			
2.7 kΩ	HF45 6270	HF45 6270			
3.0 kΩ	HF45 6300	HF45 6300			
3.3 kΩ	HF45 6330	HF45 6330			
3.6 kΩ	HJ35 6360	HF85 6360			
3.9 kΩ	HF45 6390	HF45 6390			
4.7 kΩ	HF45 6470	HF45 6470			
5.1 kΩ	HF45 6510	HF45 6510			
5.6 kΩ	HF45 6560	HF45 6560			
6.8 kΩ	HF45 6680	HF45 6680			
8.2 kΩ	HF45 6820	HF45 6820			
9.1 kΩ	HF45 6910	HF45 6910			



❊ : Not available